



# Henry County Public Schools

- **Located in North Central Kentucky**
- **Enrollment approximately 2,200**
- **3 Elementary Schools (Campbellsburg, Eastern, and New Castle)**
- **1 Middle School**
- **1 High School**



# Facility Issues in Early 2000

- **Over capacity at HCHS, New Castle Elementary, Campbellsburg Elementary**
- **Several Modular Classrooms throughout the district**
- **Limited Bonding Potential**
- **Began to explore Performance Contracting**





# Henry County

- **Nickel Tax 2006**
- **Funded Two Major Projects**
  - **\$16 million Addition/Renovation at HCHS**
  - **\$8 million Addition/Renovation New Castle Elementary & New Early Childhood Center**



# Henry County Example

- **Middle School and Eastern Elementary School in need of HVAC replacements**
- **District had limited bonding potential**



# Henry County Middle School Scope

- **Complete HVAC Renovation with new Geothermal Heating and Cooling System**
- **Dedicated ventilation system with energy recovery along with new restroom exhaust systems**
- **New Web-based Automation System with remote access**
- **Filter grilles for all heat pumps**
- **Classroom lighting upgrades**
- **Outdoor parking lot lighting scheduling**
- **Kitchen Cooler and Freezer Units Replaced**







# Eastern Elementary School Scope

- **Complete Geothermal HVAC Renovation**
- **Replace all heat pumps in school with new high efficiency 2-stage heat pumps**
- **Classroom heat pumps located above a new lay-in ceiling**
- **New lay-in ceilings in classrooms and corridor**
- **Dedicated ventilation with energy recovery**
- **Eliminate propane from the school**
- **New Web-based automation system with remote access**
- **Filter grilles for all heat pumps that are above the ceilings**
- **New lighting in corridors and older classrooms.**
- **Light levels brought to KDE standards for all classrooms.**



# Other Upgrades Around District

## Henry County High School

- Install two, 18 ft. diameter BAF in Gymnasium
- Integrate gymnasium controls into building automation system
- Integrate (35) heat pumps and (4) dx systems into building automation system
- Outdoor lighting scheduling

## New Castle Elementary School

- Integrate building controls system to web based system with remote access
- Install two variable frequency drives and 46 control valves on existing geothermal loop pumps

## Bus Garage/Field House

- Replace seven un-insulated overhead doors with new insulated doors
- Replace maintenance-bay metal halide lighting with high efficiency fluorescent lighting
- Retrofit existing metal halide wall pack lighting with LED
- Install seven programmable thermostats

All construction took place over 1 summer



# Project Financials

|   |                    |
|---|--------------------|
| <b>Total Project Cost</b>                                   | <b>\$3,027,789</b> |
| Total project change orders                                 | \$0.00             |
| Project term  | 20 years           |
| Guaranteed Energy Savings                                   | \$121,536/year     |
| Maintenance Savings   | \$30,000/year      |
| Energy Revenue Bonds Issued by Ross Sinclair and Associates |                    |





# Project Performance

| School                          | Baseline<br>kBtu/sf yr | After<br>kBtu/sf yr | % Reduction |
|---------------------------------|------------------------|---------------------|-------------|
| Henry County High School        | 63                     | 56                  | 11%         |
| Henry County Middle School      | 90                     | 47                  | 48%         |
| New Castle Elementary<br>School | 54                     | 41                  | 25%         |
| Eastern Elementary School       | 112                    | 35                  | 69%         |

**Eastern Elementary Energy Star Score of 97**

**Guaranteed Energy Savings: \$121,536**

**Actual First Year Savings: \$157,698**

**Based on Meter Data**



# Is this right for your district?

- **Needs vs. Bonding Potential**
- **Review your school energy intensities**
- **Review your costs for maintenance**
- **Talk to other districts who have completed projects**
- **Engage an Energy Services Company to help**



# How to get started?

- Fill out KDE's Request for Proposal (RFP) template and Process Checklist
- Advertise in the paper
- Select an ESCO from responses
- Develop and implement project



KDE Best Practice Link

<http://education.ky.gov/districts/fac/Pages/Construction.aspx>



# Questions

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